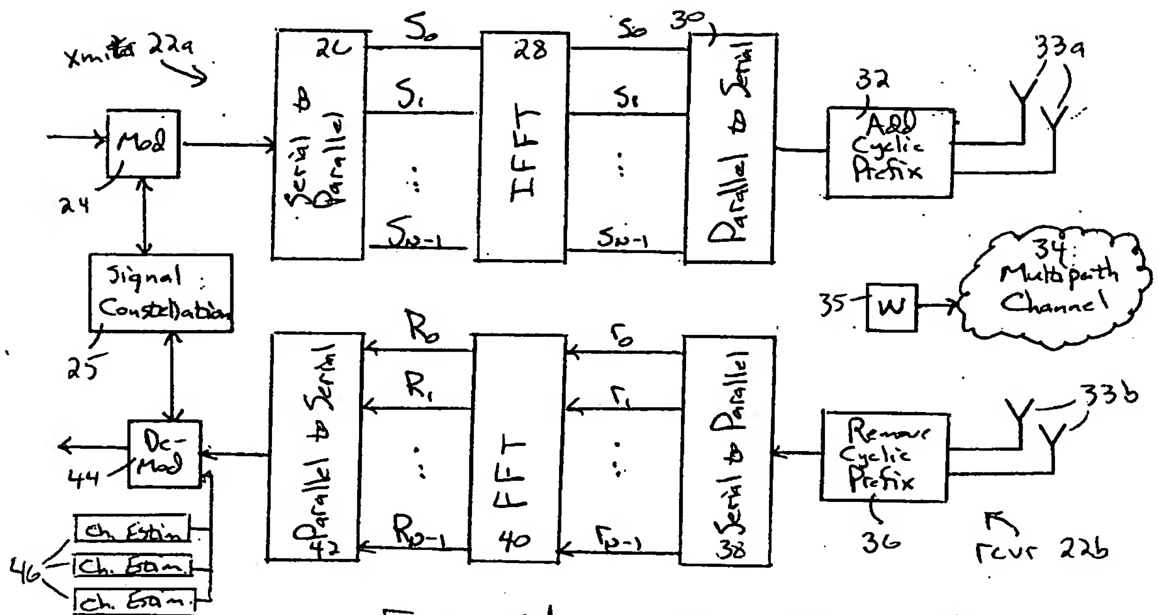

Figure 1A: MIMO OFDM modem

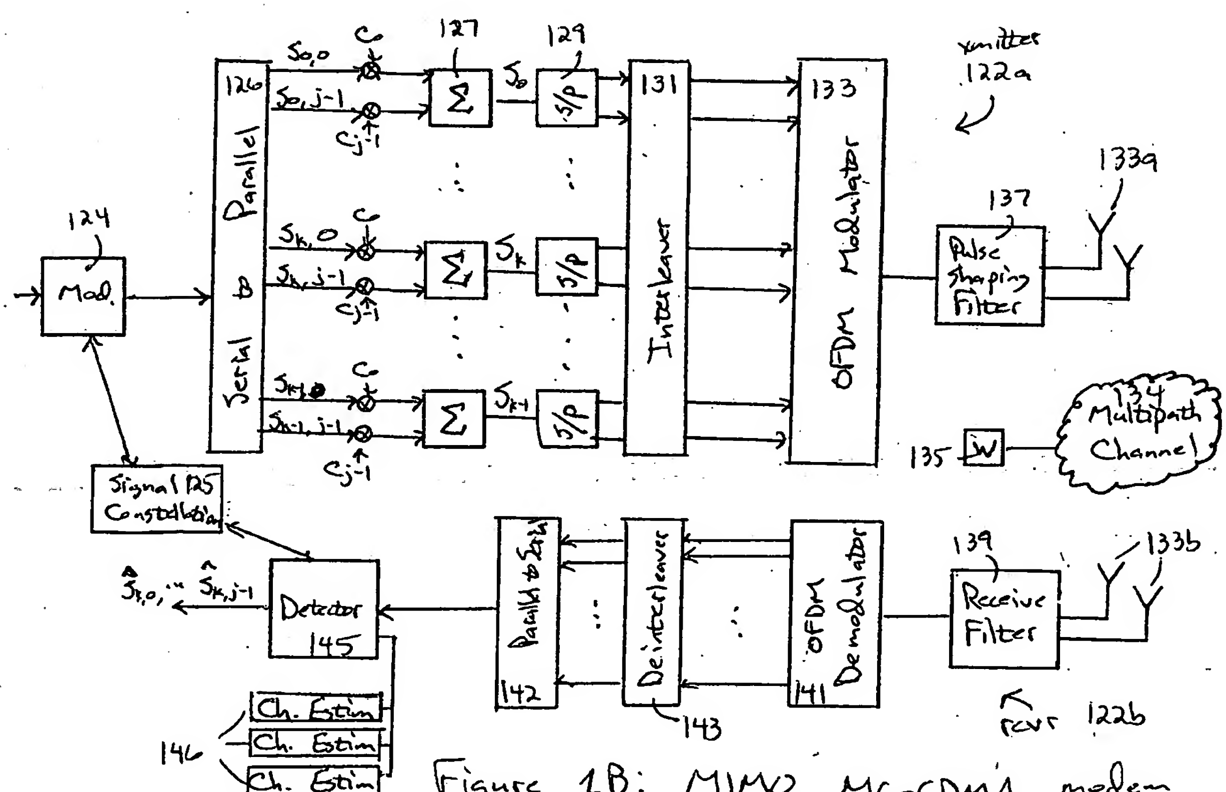

Figure 1B: MIMO MC-CDMA modem

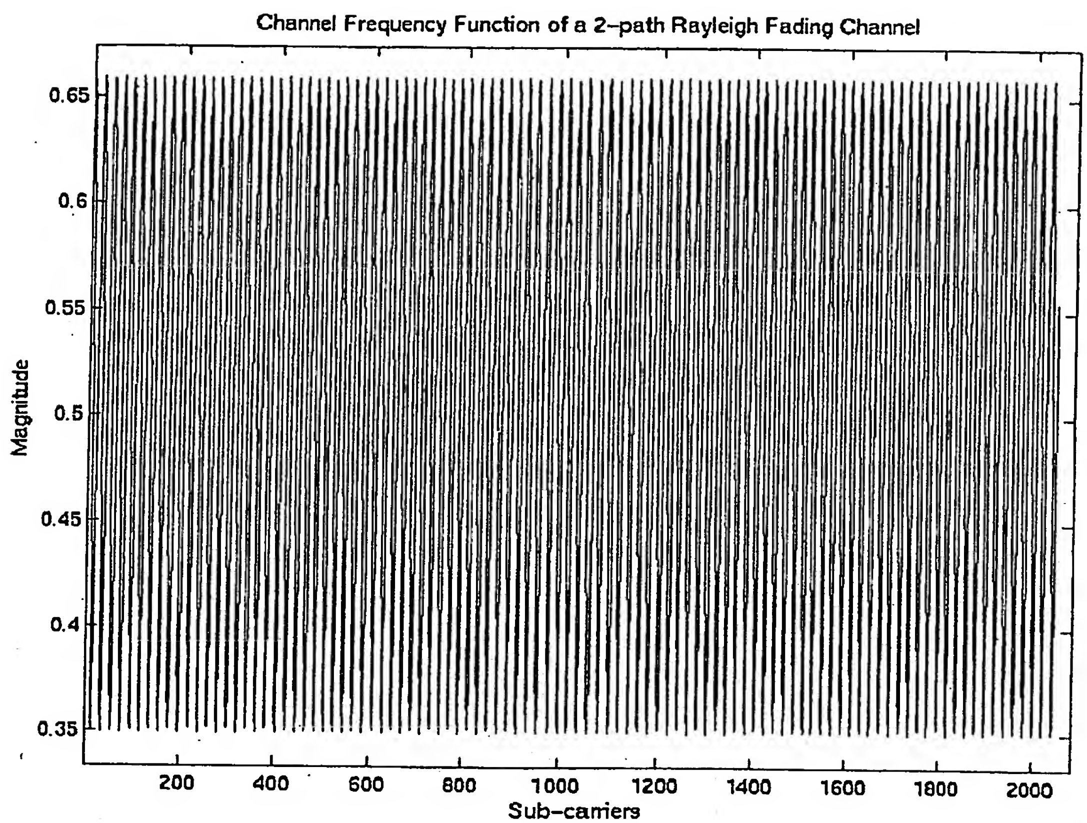

Figure 2 – Snapshot of the magnitude frequency function of a two-path Rayleigh fading channel: Prior Art

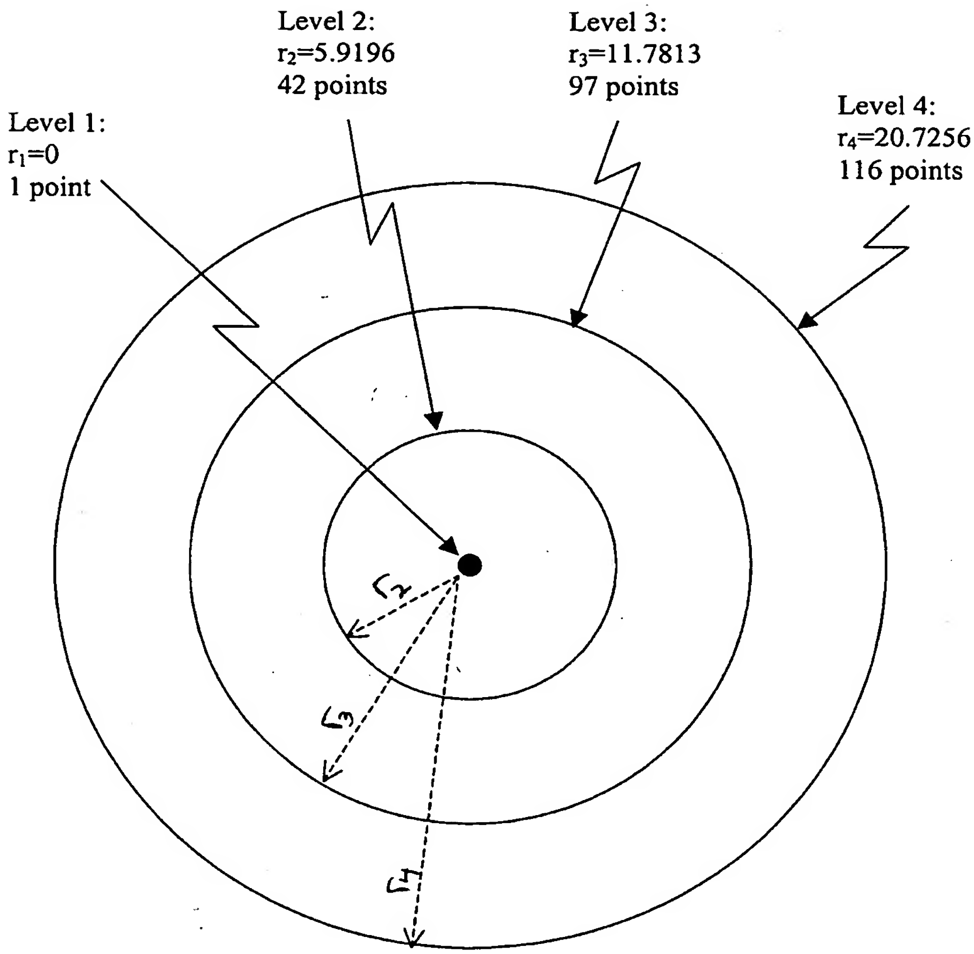

Figure 3: Four level, four-dimensional spherical constellation

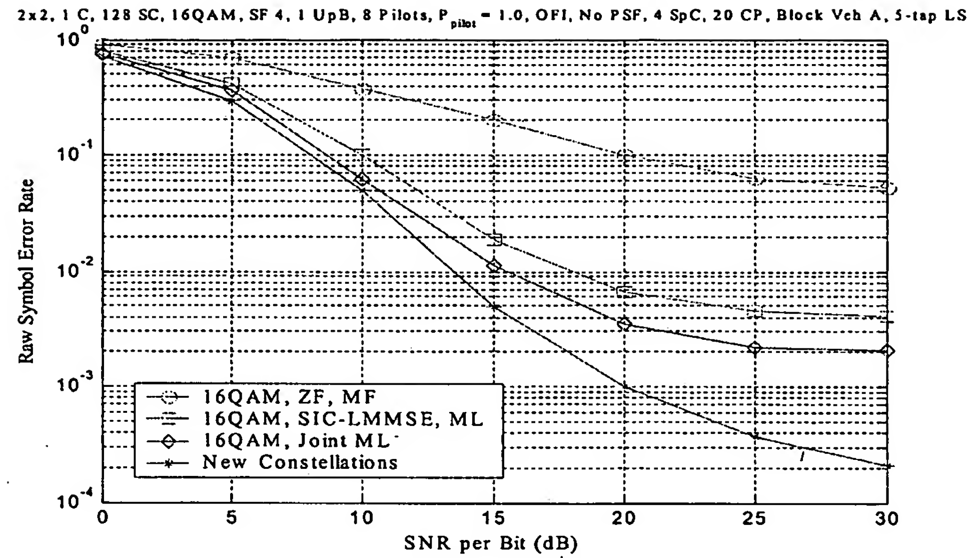

Figure 4A: Performance comparison between different conventional (BLAST-type) MIMO techniques and new constellations for a lightly loaded 2x2 MC-CDMA system with 128 sub-carriers, 8 pilots, and estimating 5 taps of the Block Vehicular A channel.

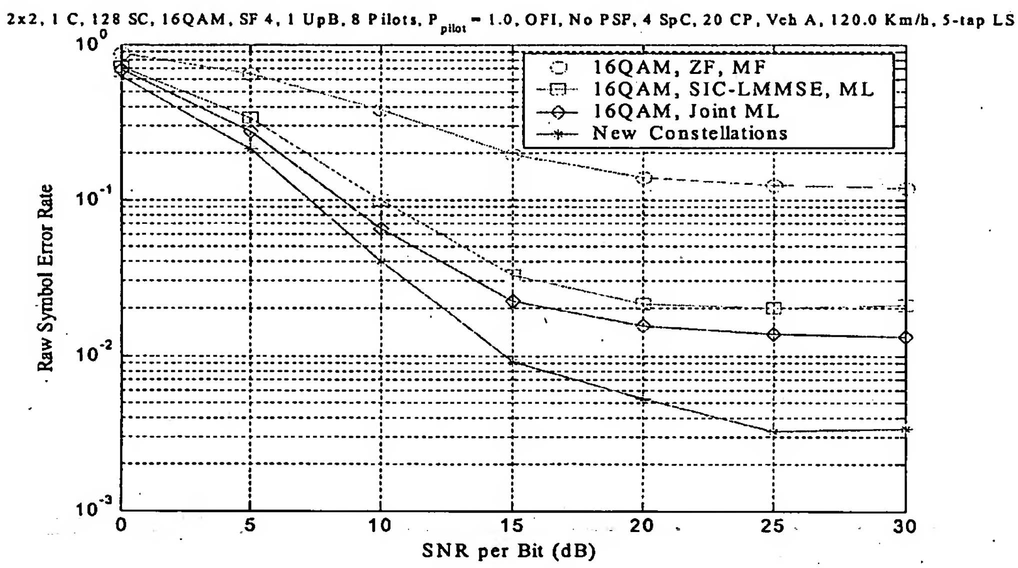

Figure 4B: Performance comparison between different conventional (BLAST-type) MIMO techniques and new constellations for a lightly loaded 2x2 MC-CDMA system with 128 sub-carriers, 8 pilots, and estimating 5 taps of the Vehicular A channel at 120 Km/h.

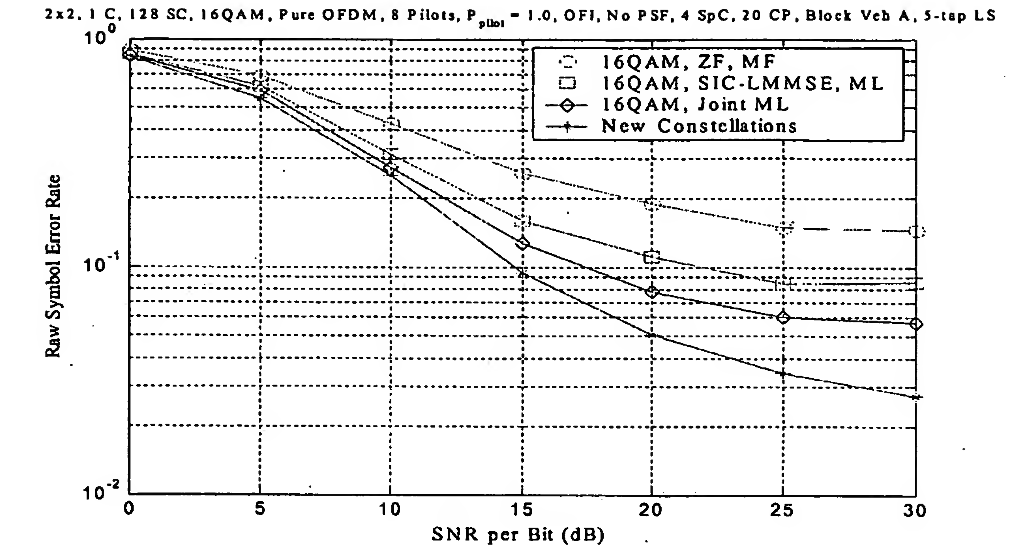

Figure 5A: Performance comparison between different conventional (BLAST-type) MIMO techniques and new constellations for a fully loaded 2x2 OFDM system with 128 sub-carriers, 8 pilots, and estimating 5 taps of the Block Vehicular A channel.

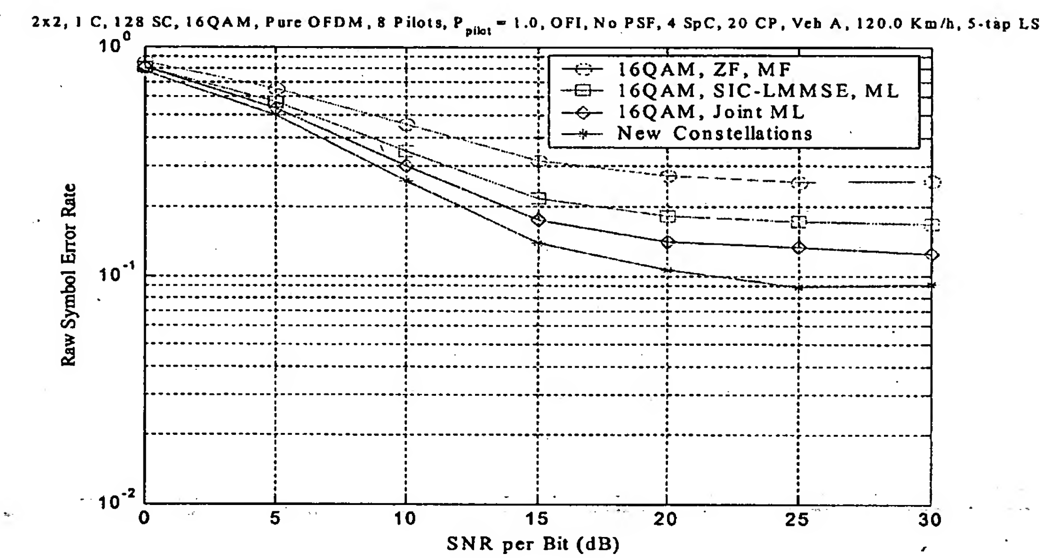

Figure 5B: Performance comparison between different conventional (BLAST-type) MIMO techniques and new constellations for a fully loaded 2x2 OFDM system with 128 sub-carriers, 8 pilots, and estimating 5 taps of the Vehicular A channel at 120 Km/h.